

Title (en)

HEAT EXCHANGER WITH DUAL CONCENTRIC TUBE RINGS

Title (de)

WÄRMETAUSCHER MIT DOPPELTEN KONZENTRISCHEN ROHRRINGEN

Title (fr)

ÉCHANGEUR DE CHALEUR COMPORTANT UN DOUBLE ANNEAU DE TUBES CONCENTRIQUE

Publication

EP 3387356 A4 20190724 (EN)

Application

EP 16873522 A 20161018

Priority

- US 201514966055 A 20151211
- US 2016057454 W 20161018

Abstract (en)

[origin: WO2017099887A1] A water heater apparatus includes an elongated radial burner extending along a longitudinal central axis of the apparatus. First and second concentric rows of longitudinally extending fin tubes around the radial burner. The fin tubes may have multiple wiped circumferentially laterally portions allowing close packing of the fin tubes for improved efficiency and reduced footprint.

IPC 8 full level

F24H 1/40 (2006.01); **F28D 1/053** (2006.01); **F28D 7/16** (2006.01); **F28D 21/00** (2006.01); **F28F 1/20** (2006.01); **F28F 1/24** (2006.01); **F28F 13/06** (2006.01)

CPC (source: EP US)

F24H 1/14 (2013.01 - US); **F24H 1/403** (2013.01 - EP US); **F28D 7/1676** (2013.01 - EP US); **F28F 1/24** (2013.01 - EP US)

Citation (search report)

- [A] GB 2205150 A 19881130 - STELRAD GROUP LTD
- [A] EP 1050721 A1 20001108 - GUILLOT IND SA [FR]
- [A] EP 2072938 A2 20090624 - A M S R L [IT]
- [A] US 2011203781 A1 20110825 - ELLINGWOOD CHRISTOPHER JOHN [US], et al
- [A] US 2015007779 A1 20150108 - CUI SHUQING [US]
- [A] US 2005274328 A1 20051215 - BAESE DAVID C [US], et al
- See references of WO 2017099887A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

WO 2017099887 A1 20170615; CA 2999185 A1 20170615; CA 2999185 C 20200310; CN 108603727 A 20180928; CN 108603727 B 20210205; EP 3387356 A1 20181017; EP 3387356 A4 20190724; EP 3387356 B1 20200212; HK 1256124 A1 20190913; US 10458677 B2 20191029; US 2017167753 A1 20170615

DOCDB simple family (application)

US 2016057454 W 20161018; CA 2999185 A 20161018; CN 201680072110 A 20161018; EP 16873522 A 20161018; HK 18115205 A 20181128; US 201514966055 A 20151211